

CLAIMS

1. A superantigen selected from any one of SMEZ-2, SPE-G, SPE-H and SPE-J, or a functionally equivalent variant thereof.

5 2. A superantigen which is SMEZ-2 and which has an amino acid sequence of SEQ ID NO. 2, or a functionally equivalent variant thereof.

10 3. A superantigen which is SPE-G and which has an amino acid sequence of SEQ ID NO. 4, or a functionally equivalent variant thereof.

4. A superantigen which is SPE-H and which has an amino acid sequence of SEQ ID NO. 6, or a functionally equivalent variant thereof.

15 5. A superantigen which is SPE-J and which has an amino acid sequence which includes SEQ ID NO. 8, or a functionally equivalent variant thereof.

6. A polynucleotide comprising a nucleotide sequence encoding SMEZ-2 or a variant thereof as claimed in claim 2.

20 7. A polynucleotide according to claim 6 in which said nucleotide sequence is or includes SEQ ID NO. 1.

8. A polynucleotide comprising a nucleotide sequence encoding SPE-G or a variant thereof as claimed in claim 3.

25 9. A polynucleotide according to claim 8 in which said nucleotide sequence is or includes SEQ ID NO. 3.

10. A polynucleotide comprising a nucleotide sequence encoding SPE-H or a variant thereof as claimed in claim 4.

30 11. A polynucleotide according to claim 10 in which said nucleotide sequence is or includes SEQ ID NO 5.

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12. A polynucleotide comprising a nucleotide sequence encoding SPE-J or a variant thereof as claimed in claim 5.

13. A polynucleotide according to claim 12 in which said nucleotide sequence includes SEQ ID NO. 7.

14. A method of subtyping *Streptococci* which includes the step of detecting the presence or absence of a superantigen as claimed in claim 1.

15. A method of subtyping Streptococci which includes the step of detecting the presence or absence of a polynucleotide as claimed in any one of claims 6, 8, 10 or 12.

16. A construct which comprises a superantigen or variant thereof as claimed in claim 1 and a cell-targeting molecule.

17. A construct according to claim 16 in which said cell-targeting molecule specifically binds a tumour cell.

18. A construct according to claim 17 in which said cell-targeting molecule is an antibody.

19. A pharmaceutical composition which includes a construct as claimed in claim 16.

20. An antibody which binds superantigen SMEZ-2 as claimed in claim 2.

21. An antibody which binds superantigen SPE-G as claimed in claim 3.

22. An antibody which binds superantigen SPE-H as claimed in claim 4.

23. An antibody which binds superantigen SPE-J as claimed in claim 5.

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24. A kit which includes an antibody as claimed in any one of claims 20 to 23.

25. A nucleic acid molecule which hybridises to a polynucleotide of claim 7.

5 26. A nucleic acid molecule which hybridises to a polynucleotide of claim 9.

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27. A nucleic acid molecule which hybridises to a polynucleotide of claim 11.

10 28. A nucleic acid molecule which hybridises to a polynucleotide of claim 13.

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29. A kit which includes a nucleic acid molecule as claimed in any one of claims 25 to 28.

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30. A method of diagnosing a disease which is caused or mediated by expression of a superantigen as claimed in claim 1 which includes the step of detecting the presence of said superantigen using an antibody which binds superantigen SMEZ-2, SPE-G, SPE-H or SPE-J, or detecting the presence of a polynucleotide encoding said superantigen using a nucleic acid molecule which hybridises to a polynucleotide comprising a nucleotide sequence encoding SMEZ-2 which is or includes SEQ ID No. 1, a nucleotide sequence encoding SPE-G which is or includes SEQ ID No. 3, a nucleotide sequence encoding SPE-H which is or includes SEQ ID No. 5, or a nucleotide sequence encoding SPE-J which is or includes SEQ ID No. 7.